Abstract of the Disclosure

An EEPROM device constructed in a first active area having a multi-element floating gate structure, including a central polysilicon body surrounded by a polysilicon spacer element and mutually separated by an upright layer of thin oxide for electron tunneling. An auxiliary active area, isolated from the first active area, is employed as a charge reservoir for programming and linked to the first active area by an extended ion implantation region. Before the poly spacer is built, the central poly body is used as an alignment mask for source and drain implants. After implanting source and drain, the thin oxide is deposited and the poly spacer is built. A poly cap makes contact with the poly spacer but not the central poly body. A hole is made through the poly cap into the central poly body and then filled with metal, electrically joining the poly cap and the connected poly spacer with the central poly body so that the multi-element floating gate structure is at the same electrical potential. The multi-element floating gate may be charged by band to band tunneling or otherwise, drawing charge from the auxiliary active area.